

**Notice of Allowability**

Application No.

10/713,908

Examiner

Shefali D. Patel

Applicant(s)

MILLER, STEVEN D.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 3/1/07.
2. ☒ The allowed claim(s) is/are 1-6.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 3/16/07; 3/20/07
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 3/23/07
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on March 1, 2007 has been entered.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on March 16, 2007 and March 20, 2007 have been considered by the examiner.

### ***Response to Arguments***

3. Applicant's arguments, see Remarks on page 7, filed on March 1, 2007 have been fully considered and are persuasive.

### ***Allowable Subject Matter***

4. Claims 1-6 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The instant invention defines a system claimed in claim 1 and 5; a method in claim 6. The claimed invention distinguishes over the prior art by the manner in which the images are detected and enhanced. The claimed combination allows for improving a method and a system for detecting atmospheric dust.

This type of systems and method are conventional in the art. However, the prior art of record fails to teach a storage portion operable to store multispectral optical-spectrum imagery data from multiple channels relating to different wavelengths across the visible, shortwave infrared, and thermal

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infrared portions of the optical spectrum: a processor operable to process the multispectral optical-spectrum imagery data by performing a numerical atmospheric correction on a portion of the multispectral optical-spectrum imagery data for removal of molecular scatter within all of the visible-spectrum channels, based on radiative transfer calculations stored in pre-computed look-up tables and indexed as a function of solar and sensor geometry, by determining pixel background for each pixel of an image corresponding to the multispectral optical-spectrum imagery data by combining known earth location data with data from a terrestrial database, and by computing, via a background-dependent algorithm, the dust enhancement variable  $\Delta$ ; and a display comprising red, blue and green color display portions operable to display the processed multispectral optical-spectrum imagery in the visible light spectrum via a hue/saturation decomposed color technique as disclosed in claim 1.

The prior art of record also fails to teach a device for use with an image comprising pixels derived from multispectral optical-spectrum imagery data from multiple channels relating to different wavelengths across the visible, shortwave infrared, and thermal infrared portions of the optical spectrum and with a display, said device comprising: a removing portion operable to remove, from a first portion of the pixels, effects of atmospheric molecular scattering; a scaling portion operable to scale spectral radiance of a second portion of the pixels; a flagging portion operable to flag a third portion of the pixels as cloudy; a dust enhancement portion operable to define a dust enhancement parameter; a scaling portion operable to scale the dust enhancement parameter; a differentiating portion operable to differentiate, within the third portion of the pixels, a set of cloud pixels from a set of dust pixels based on the scaled dust enhancement parameter; and a changing portion operable to change color of the set of dust pixels as disclosed in claim 5.

Further the prior art fails to teach a method of modifying an image comprising pixels derived from multispectral optical-spectrum imagery data from multiple channels relating to different wavelengths across the visible, shortwave infrared, and thermal infrared portions of the optical spectrum-

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and with a display, said method comprising: removing, from a first portion of the pixels, effects of atmospheric molecular scattering; scaling spectral radiance of a second portion of the pixels; flagging a third portion of the pixels as cloudy; defining a dust enhancement parameter; scaling the dust enhancement parameter; differentiating, within the third portion of the pixels, a set of cloud pixels from a set of dust pixels based on the scaled dust enhancement parameter; and changing color of the set of dust pixels as disclosed in claim 6.

These elements in combination with all of the other elements of the claims are not taught or fairly suggested in the prior art of record. The dependent claims are allowed for the same reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner  
Art Unit 2624

sdp



**MATTHEW C. BELLA**  
**SUPERVISORY PATENT EXAMINER**  
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